

A DISASTER RISK ASSESSMENT MODEL FOR THE CONSERVATION OF
CULTURAL HERITAGE SITES IN MELAKA MALAYSIA

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To my late wife Maryam Salihu Danjummai who died 9.24pm on 27th April 2017 at
Sultanah Nora Isma'il Hospital Batu Pahat Johor Malaysia



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ABSTRACT

There exist ongoing efforts to reduce the exposure of Cultural Heritage Sites (CHSs) to Disaster Risk (DR). However, a complicated issue these efforts face is that of 'estimation' whereby no standardised unit exist for assessing the effects of Cultural Heritage (CH) exposed to DR as compared to other exposed items having standardised assessment units such as; 'number of people' for deaths, injured and displaced, 'dollar' for economic impact, 'number of units' for building stock or animals among others. This issue inhibits the effective assessment of CHSs exposed to DR. Although there exist several DR assessment frameworks for conserving CHSs, the conceptualisation of DR in these studies fall short of good practice such as international strategy for disaster reduction by United Nations which expresses DR to being a hollistic interplay of three variables (hazard, vulnerability and capacity). Adopting such good practice, this research seeks to propose a mechanism of DR assessment aimed at reducing the exposure of CHSs to DR. Quantitative method adopted for data collection involved a survey of 365 respondents at CHSs in Melaka using a structured questionnaire. Similarly, data analysis consisted of a two-step Structural Equation Modelling (measurement and structural modelling). The achievement of the recommended thresholds for unidimensionality, validity and reliability by the measurement models is a testimony to the model fitness for all 8 first-order independent variables and 2 first-order dependent variables. While hazard had a 'small' but negative effect, vulnerability had a 'very large' but negative effect on the exposure of CHSs to DR. Likewise, capacity had a 'small' but positive effect on the exposure of CHSs to DR. The outcome of this study is a Disaster Risk Assessment Model (DRAM) aimed at reducing DR to CHSs. The implication of this research is providing insights on decisions for DR assessment to institutions, policymakers and statutory bodies towards their approach to enhancing the conservation of CHSs.

ABSTRAK

Terdapat usaha-usaha yang dijalankan untuk mengurangkan Tapak Warisan Budaya (CHS) daripada terdedah kepada Risiko Bencana (DR). Bagaimanapun, satu isu yang rumit yang dihadapi dalam melaksanakan usaha-usaha ini adalah tiadanya penganggaran atau satu unit piawai bagi menilai kesan-kesan yang dihadapi oleh Tapak Warisan Budaya akibat terdedah kepada risiko bencana. Perkara-perkara lain yang terdedah kepada risiko bencana mempunyai unit penilaian yang piawai seperti; jumlah individu yang mati, cedera atau hilang, kesan ekonomi, bilangan unit untuk stok bangunan atau haiwan dan lain-lain. Isu ini menghalang penilaian berkesan dilakukan ke atas CHS yang terdedah kepada DR. Walaupun terdapat beberapa rangka kerja penilaian DR untuk pemuliharaan CHS, pelaksanaan konsep DR dalam kajian-kajian lepas tidak mencapai tahap amalan baik seperti strategi antarabangsa untuk mengurangkan bencana oleh Pertubuhan Bangsa-Bangsa Bersatu. Strategi ini menyatakan bahawa DR melibatkan tiga pembolehubah holistik iaitu bahaya, kerentanan dan kapasiti. Dengan mengambil kira amalan baik seperti ini, kajian ini mencadangkan satu mekanisme penilaian DR yang bertujuan untuk mengurangkan pendedahan CHS kepada DR. Kaedah kuantitatif dengan menggunakan soal selidik berstruktur telah digunakan untuk pengumpulan data yang melibatkan 365 responden bagi CHS di Melaka. Analisis data pula merangkumi dua tahap dalam *Structure Equation Modelling* (pengukuran dan pemodelan struktur). Pencapaian terhadap pembolehubah yang dicadangkan ditentukan melalui kesahan dan kebolehpercayaan bagi membuktikan kekuatan model untuk semua 8 pembolehubah tidak bersandar tertib pertama dan 2 pembolehubah bersandar tertib pertama. Bahaya mempunyai kesan negatif yang kecil dan kerentanan mempunyai kesan negatif yang sangat besar akibat pendedahan CHS kepada DR. Sebaliknya, kapasiti menerima kesan yang kecil tetapi positif akibat terdedahnya CHS kepada DR. Dapatan daripada kajian ini adalah, sebuah Model Penilaian Risiko Bencana (DRAM) yang bermatlamat untuk

mengurangkan DR kepada CHS. Implikasi kajian ini adalah untuk membantu dalam membuat keputusan kepada institusi-institusi, pembuat dasar dan badan-badan berkanun dalam meningkatkan pemuliharaan CHS.



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LIST OF ACRONYMS

ADPC	Asia Disaster Preparedness Centre
CH	Cultural Heritage
CHs	Cultural Heritages
CHS	Cultural Heritage Site
CHSs	Cultural Heritage Sites
DR	Disaster Risk
DRs	Disaster Risks
DRA	Disaster Risk Assessment
DRAM	Disaster Risk Assessment Model
DRR	Disaster Risk Reduction
HBs	Heritage Buildings
HFA	Hyogo Framework for Action
MBMB	Majlis Bandaraya Melaka Bersejarah (Melaka Historic City Council)
MI	Modification Index
MIIs	Modification Indices
NH	Natural Heritage
NHA	Natural Heritage Act
NGOs	Non-Governmental Organisations
NLA-21	National Local Agenda 21
PERZIM	Perbadanan Muzium Melaka (Melaka Museums Corporation)
RA	Risk Assessment
SD	Sustainable Development
SDG	Sustainable Development Goals
SFDRR	Sendai Framework for Disaster Risk Reduction
UNESCO	United Nations Educational, Scientific and Cultural Organisation

UNDP	United Nations Development Program
UNISDR	United Nations International Strategy for Disaster Reduction
WHS	World Heritage Site
WHSs	World Heritage Sites



PTTA UTHM
PERPUSTAKAAN TUNKU TUN AMINAH


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CHAPTER 1

INTRODUCTION

1.1 Overview



This chapter introduces this research. It begins by giving a background of the research after which it identifies the problem warranting the execution of the research. It also presents the research questions, states the aim and its accompanying objectives and also presents the hypothesis of this research. Furthermore, the scope of the research is highlighted after which the methodology of the research is illustrated. Finally, the chapter briefly discusses the content of each chapter of this thesis.

1.2 Research Background

There has always been a tussle among authors not only in marrying the terms culture and heritage but also in the length and breadth of what each term constitutes. The idea underpinning the marriage of both terms has somewhat enabled the concept to being context bound. This is confirmed in the suggestion that Cultural Heritage (CH) must be considered and judged primarily within the cultural contexts to which it belongs (UNESCO, 2015a). Such statement could mean that CH judged to belonging to a

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